

# Water District Saves with CCTV Inspection Equipment

Unexpected financial rewards result from investing in proactive maintenance of a wastewater collection system.

**E**l Toro Water District (ETWD) is located in Southern California and is responsible for the water and sanitary sewer collection systems and wastewater treatment for portions of the cities of Aliso Viejo, Laguna Hills, Mission Viejo, Lake Forest, and all of the City of Laguna Woods. Founded in 1963 as Rossmoor Sanitation, Inc, a private company, it has grown to become El Toro Water District with a customer base of over 50,000, covering about 135 miles of sewer pipelines.

ETWD is responsible for its own water recycling facility, which handles about five mgd. A highly efficient in-house crew that is headed by Ralph Palomares, Collection Systems Supervisor, handles all routine maintenance of the sewer collection system.

CCTV inspection is not new to ETWD. The agency purchased its first push rod camera system back in 1987 from Pearpoint, Inc. ([www.pearpoint.com](http://www.pearpoint.com)) and has been adding inspection technology ever since. In 1999, the agency purchased a custom-built mainline inspection vehicle equipped with a Pearpoint P494 Pan & Tilt Camera, P420 tractor, and flexidata™ pipe reporting software for the purposes of surveying its entire system and documenting its integrity. The goal of the inspection team was to complete the process as quickly as possible and complete 2,500 ft of CCTV and 4,000 ft of

hydrocleaning per workday.

High production volumes were easily achieved with the new equipment. In addition, the crew planned the work carefully—whenever possible inspecting eight-in. lines together, followed by six-in. and so forth, thus cutting down on the time required for changeover and set up of the tractor for varying pipe diameters. What was not anticipated was the number of problems the inspection camera would make evident. “We knew the camera was going to create work for us, we just didn’t realize how much,” Palomares explained, “however, it would help us in the long run by pinpointing problem areas which could be addressed and thereby minimize the potential for SSOs.”

Like most publicly owned agencies, ETWD answers to a regional water quality control board, local health departments, and other environmental agencies. ETWD is situated on a dividing line and has to answer to both the Santa Ana Regional Water Board and the San Diego Regional Water Board. These regional water boards are issuing mandates to all sewer and sanitary agencies for the



*Ed Peterson, Collection Systems Supervisor, preparing the camera and tractor for inspection deployment.*



*Ed Peterson, supervisor, and Ty Banagas, crew member, preparing to lower the main line camera into the manhole to conduct an inspection.*

inspection of their sewer system and documentation to that effect. These mandates are in addition to the potential ratification of CMOM regulations. Palomares related “the regulatory agencies aren’t taking any more excuses for sewer spills from the cities and sanitary districts. By having our inspection program in place and submitting our documentation to the regional water boards, we are ahead of the game.”

As the system cleaning and inspection progressed, the agency documented nearly 300 repairs that needed to be made. These repairs were scheduled over a period of time based on rating and grade documented on the CCTV surveys. To date over 125 repairs have been completed.

ETWD’s operators and their knowledge and care of the agency’s equipment are the key to its success. All of this efficiency and productivity did not happen overnight. Operators receive ongoing

training for the care, maintenance, and operation of their equipment to achieve optimum performance.

## Outsourcing Opportunities

Being so efficient created an opportunity for Palomares and his team. The El Toro Water District was able to outsource cleaning and inspection services to the neighboring Santa Margarita Water District. This mutually beneficial contractual arrangement enhanced ETWD revenues and allowed SMWD to meet sewer maintenance production goals without immediate increases in staff or investment in additional capital equipment.

Over the course of a typical month, the crew has 20 workdays. Currently, ten are devoted to the on-going maintenance of ETWD’s system and the balance is contracted out to Santa Margarita. Santa Margarita’s system is quite different from ETWD in that it is a newer collection system comprised primarily of PVC pipe as compared to ETWD’s, which is 99 percent VCP. The area is extremely hilly and this, along with grease, presented some challenges for the crew and camera equipment. At the onset of the contract, traction was difficult and the production was not what the crew knew they were capable of—runs of just 200 ft compared to typ-



*Camera on tractor in a main line at the manhole entry point. White foam is root remover that was administered after the camera spotted root problems in the line.*



*Crew member adding water to the main line after root elimination treatment has been administered to accelerate the root removal.*

ical runs of 900 to 1,000 ft. A solution became available through an ETWD staff member with the creation of special wheels for the camera tractor, designed to handle PVC pipe. Once these wheels were fitted to ETWD's system, 1,000-ft runs became easy. Santa Margarita recently purchased its own CCTV rig from Pearpoint. To date, ETWD's crew has completed one million ft of CCTV inspection between the two agencies' systems.

For a contracting agency like ETWD, the public relations and perception of its customers has been overwhelmingly positive. Rate payers are seeing the monies earned through contracting passed down as a savings to them and the work to date has covered the cost of the equipment, allowing ETWD to continue to upgrade its equipment and crew training.

One of its strongest selling advantages to neighboring communities is ETWD's commitment to staying on the cutting edge of technology. It recently made the shift from videotape to digital video. The agency utilizes flexidata (PipeLogix, [www.pipelogix.com](http://www.pipelogix.com)) for its data collection and creation of survey reports. Ed Peterson, Collections Supervisor related,

"We transfer the information directly off the field computer directly to CDs or DVDs—it's so easy. All of this is then kept in a library as well as on the main-frame computer so everyone can have access. It allows us to document much more information than VHS and this is of great help to our engineers." Sharing survey data in a digital format is the preferred method of ETWD contract customers, Palomares stated, "It is what they want. Put it in the computer, click, click and there it is."

Santa Margarita was the start of this new outsourcing opportunity for the agency. ETWD is considering plans to expand its contracting services to other areas of Orange County and is considering adding equipment so it can offer storm system inspection.

ETWD's success was built on a simple model of efficiency, the right tools, and training. Palomares credits the camera and the inspection crew as being the "lynch pin" to the success of the contracting program. "Without a camera and well-trained operator you are blind. The secret of our success and for any collection system I believe is having a great crew, and reliable camera or cameras to document your system and work." 